

A chronology for French High Gothic: consequences of *The Ark of God*.

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This analysis expands on Part A of *The Creation of Gothic Architecture - an Illustrated Thesaurus*, also called *The Ark of God*. It is an archive of foliate capitals from the Paris Basin between 1170 and 1250.

It had been remarked by Viollet-le-Duc, Jalabert and others, that the style of Gothic foliate carving changed gradually from *printemps à l'été*, from simpler more spring-like forms to highly complex summer-like images.¹ In *The Ark* I have confirmed this observation from capitals that are clearly dated by the documents. They enabled me to define the carving manner of each of these seven decades.² The definitions were then applied to all those churches with foliate capitals but for which there was little or no documentation. Thus, the one item common to every one of these buildings, could be used to lay the foundation for a chronology, if only to the decade. It includes all the churches that form the substance of historical analysis.



With Chris Henige's help, 300 documents pertinent to construction have been included. Each has been verified, the wording checked with the originals, and translated. They show that during the eighty years covered by these two volumes only parts of seventeen buildings can be dated with any certainty. Forty-five other buildings have texts with varying degrees of relevance and uncertainty as to time or place. Everything written on the creation of Gothic architecture depends on them. Such a miniscule foundation has resulted in many unfortunate assumptions and memes.³ Scholars have become used to this arrangement, and though some have seriously questioned details – Caviness, Blum and Bruzelius, to mention a few⁴ – it would seem that a global reassessment is now needed.

My purpose here is to stimulate such a reassessment by setting out some consequences of the dating presented in *The Ark* for the period after 1170. (I wrote this almost twenty years ago – and am still waiting).

As Bony wrote, "the margin of even a few years makes a great difference in terms of historical meaning".⁵

The first conclusion was that during only one decade, the 1170s, the design of foliate carving in the Greater Seine valley was transformed from the formal style that Denise Jalabert called *généralisée* to a more natural style of carving, compare Senlis with Chartres.⁶ I intend to show that the men of this decade simultaneously redefined the nature of architecture and set the seal on aesthetics for centuries to come.



The transformation was localized to the Paris Basin, and seldom appeared elsewhere for another twenty years. This conclusion is particularly vital for historians, for it provides a reliable watershed date whereby every building in the Paris Basin with only formal capitals should be dated before 1170±, and all those with only natural capitals should be dated after 1180±. For example, the west portal at Senlis and the Valois portal at Saint-Denis should both be dated before 1170 as all the foliage is formal.

The second conclusion was that Gothic was not created solely in the great cathedral workshops from which ideas spread outwards to the minor sites, but that invention was an on-going continuous process, often found in the smaller buildings long before being used in the cathedrals. This contradicts earlier beliefs that, for example, the ideas generated in Reims were "passed on to a large number of new shops that it formed and colonized" and "once the work at Saint-Denis was finished ... the workshop gathered together by Suger was moved to Chartres".⁷

In the grand histories that dwell mainly on the larger buildings and on the flow of styles and ideas, it is usual to credit the High Gothic tall clerestory to Chartres, the Rayonnant integration of triforium with clerestory to Saint-Denis, the invention of tracery to Reims and flying buttresses to Paris – all major centers. The analysis in *The Ark* throws doubt on the above, and that the story is more complex and more interesting.

The third conclusion concerns the major sources of inspiration for the High Gothic format. The essential ingredients were tall aisles and spaciousness, enormous windows stretching full-width between thin vaulting shafts and elongated below the vault springing into the triforium, and the whole articulated with delicate stone tracery in one plane and flying buttresses in the other. Whatever the decorative niceties applied to this format over the centuries, these were the core inventions from which all others stemmed.

The origin for these concepts would be where they first appeared, in the great Benedictine and Cistercian abbeys to the north and east of Paris, rather than the cathedral sites: with Saint-Germer-de-Fly, Preuilley, Saint-Remi, Braine, Longpont, Chaalis, Orbais, Essômes and, finally, Saint-Martin-aux-Bois. The possible reason is that the abbeys may have been more inclined to investigate deeper religious issues, and may have more naturally discussed their ideas in a way that stimulated the masons to redesign their spaces, than the cathedrals that were more concerned with political issues.

To illustrate these conclusions this article will address these four issues:

The loneliness of Notre-Dame that inspired very little;

Chartres was the outcome, not the origin, or invention was continuous and ubiquitous;

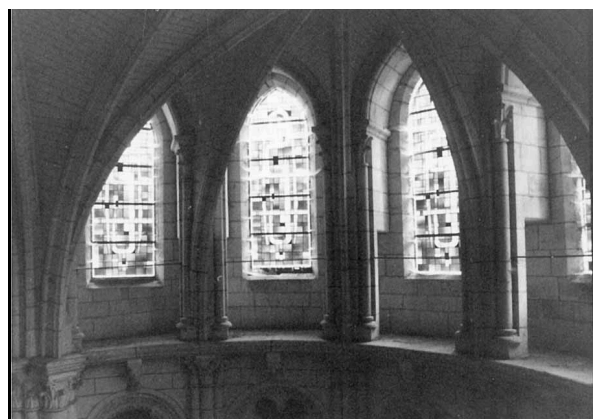
The first High Gothic format was already present in the 1160s, and

The concepts that made the Rayonnant of Saint-Germain-en-Laye began twenty years earlier.

The loneliness of Notre-Dame

It is usual to consider Notre-Dame the greatest work of the 'Paris school' rather than an exception.⁸ Apart from a couple of local buildings – Santeuil around 1176 and Chars started just a few years later – the tall-and-thin format of Notre-Dame seems to have had almost no immediate effect in the Ile-de-France.

The elevational arrangement had been formulated in the later 1150s at the Benedictine abbey of Saint-Germer-de-Fly. Full of innovation, Saint-Germer presents the first tall-and-thin proportion with a four-story elevation, galleries that were intended to be vaulted and with supports for flying buttresses.⁹ The internal clerestory passage created a skeletal appearance as there was no walling adjacent to the ribs – a system that was to have a major influence in the Laonnais. Indeed, Chars, with its internal clerestory passage, should be seen as a more sophisticated version of Saint-Germer, a local facsimile rather than "an imitation of the original elevation of Notre-Dame".¹⁰



From Aubert onwards scholars have dated the first flyers from those in the Paris nave, and Bony's comparison of just one pair of capitals in Notre-Dame and Canterbury sufficed for scholars to place the nave in the 80s.¹¹ However, the style of foliage of the first six bays shows they were carved in the early 1190s, while the more westerly bays were carved in the next decade. Not that it is now so important to keep the origin of flyers in Paris, as it is understood they were first planned and built thirty years earlier during the later 1150s along the Seine and Oise rivers.¹²

The height of the Notre-Dame aisles was determined when the external walls were built in the 1140s, and suggests an interior akin to Saint-Germain-des-Prés. This height could still have been intended in the gallery level of the late 60s if there was to have been no triforium, as at Mantes or Santeuil. The decision to raise the height had been made before Torigny's letter of 1177.¹³ Having created this showpiece, great height hardly ever appeared in later years in the Parisis, but it was taken up with enthusiasm in the bishoprics of the north-east.

Squat is far more usual. Aisles with about three-meter piers were normal for the area, and remained so until the 1250s. In the majority of Ile-de-France churches the vaults spring from below the triforium or gallery capitals, and the clerestory is pulled downwards and often reduced to a small oculus.¹⁴ In some cases it has been eliminated altogether. This is seldom discussed in the histories, which are generally more interested in following the tall-and-thin story being pursued in other regions. Squat has been unkindly condemned as having "no proper understanding of the major problems of the day"¹⁵ – yet who decides what is a "major problem" if not the locals? While the rest of the Basin was pushing upwards, the Parisis was determinedly hunkering even lower.¹⁶

Some scholars would wish to date the Notre-Dame western portals before the Chartres transept porches.¹⁷ From the foliage and the toichogical evidence I would suggest that the capitals over the northern embrasure figures were carved just before 1205 integrating some earlier work from the 90s, those alongside the central door around 1208 and the south just after 1210 incorporating earlier work from the 40s.¹⁸ At Chartres the south porch embrasure figures were in place by 1202 and all the northern embrasure figures were completed in 1208.¹⁹ If placement reflected execution, then this may settle the argument on whether the Chartres figures were earlier or later than Paris – they were either carved at the same time or, in some cases, Chartres may have been a year or two earlier.

Chartres was the outcome, not the origin

For over a century Chartres has been seen as the source of any building that carried its genes. Consequently Braine, Soissons, Longpont and Orbais were all dated after it. Yet the foliage in the capitals is unambiguous in showing that the essential parts of all of these buildings were completed or under construction many years, even decades, before Chartres. They are the source, not the progeny. The vocabulary of forms at Chartres had been established over the previous two decades, the only difference being that at Chartres "power is the key: in constructional engineering, in the carving of space".²⁰

Saint-Yved in Braine: Madeline Caviness has argued from the documents that "cumulative though largely circumstantial evidence suggests that the Premonstratensian abbey of Braine was begun about 1176".²¹ As there are only a couple of formal capitals in the aisles of the choir and first bays of the nave their foliage would have been carved within a year of 1180, with the footings laid down a little earlier, as Caviness suggests. This is almost twenty years before Chartres.

There are two elements at Braine that were to have a profound impact on the future: the continuous triforium and the layered clerestory. The Mans nave from the 1140s and Juzières a decade later were earlier, as were those in the Laon and Noyon cathedrals from the 60s where the triforium was less important than the vaulted gallery.²² But in Braine it formed the center of a simplified three-story elevation that was to become extremely popular.

By extending the arcade of the triforium full-width between the vaulting shafts the flanking wall was squeezed out. The triforium arcade appears to continue behind the shafts before reappearing on the other side. In front, the string courses and the edges of walkways continue across the outside of the shafts. Weaving horizontal and vertical elements reduced mass to line and pattern, the first step in what was to be applied to every element of the building in a process that reduced the mass of masonry to a skeleton.

The second element found externally at Braine is what Bony called recession, a concept of 'diminishing bulk' with stepped-back planes and external walkways in the clerestory.²³ It was also used at Saint-Michel-en-Thierace, which is contemporary with Braine in the lower story but a decade later in the upper. The earliest example of recession may be the clerestories of Guignicourt from the later 60s and Mons-en-

Laonnais from the early 70s. In any case, it comes from the Laonnais and seldom strayed beyond until the next century. I do not consider the external walkways in the Chartres ambulatory of 1202/3 as exceptions as they were designed by a builder who seems to have done most of his work in the north-east.

Soissons cathedral: Our understanding of documents depends on interpretation, and there have been as many missed opportunities at Soissons as there were at Chartres, where the misreading of the Chartres moneychangers document by Lefèvre-Pontalis led to seventy years of error, finally corrected by Robert Branner.²⁴ During and after the 80s money was given and chaplaincies founded for the choir, and there were annual processions around the ambulatory that could not be imagined if the choir aisles were not in place.²⁵ These documents together with the interconnected coursing between the choir and the south transept,²⁶ suggest a commencement date of about 1182.

The gift for the small roses of the clerestory in 1202 should have alerted historians to a more realistic completion date for the clerestory walls.²⁷ We may guess that, as with most fund-raising, donors were encouraged to pay for specific items to provide a sense of pride and personal achievement, especially effective if the donor could see an immediate outcome for his money. It is therefore likely that the upper parts of the clerestory walls were being placed in 1202.

Both these dates are confirmed in the foliage of the capitals.

In Chartres it needed thirteen years from the first stones of the nave triforium to the underside of the clerestory roses. Construction at Soissons may have been a little faster as only the choir was being erected, but even so, the decision for what Carl Barnes has called the 'tall clerestory' (the high vault capitals sit above the sill), would have been made at least ten years before, around 1192.

Therefore, in this item Soissons predates Chartres.

Orbais-l'Abbaye: Two chapels were dedicated in 1180, and the capitals over the drum piers confirm that the aisle vaults could have been completed by then, though the walls had been built almost 30 years earlier.²⁸ Another document states that the work was completed by Count Thibaut during his reign, 1197-1203. The capitals in the triforium and clerestory will not construe a date later than this, in spite of arguments by some historians,²⁹ and indicate the mid-90s. Thus, the tall clerestory of Orbais would seem to be virtually contemporary with Soissons, and therefore before Chartres.

There is also the interesting choir at Moret-sur-Loing where the clerestory capitals were raised just above the sills in the last years of the century. Thus by 1200 three buildings had begun to raise the springing of the high vaults, over a decade before the decision was taken to do the same at Chartres.

The key inventions that went into the making of Chartres are all from the north-east: the stretched aisle, the full-width window, the woven triforium, the giant rose, the tall clerestory and the *tas-de-charge*.

The stretched aisle: Piers over 8 meters tall became almost standard in the great buildings of the 1230s and 40s. Up to the 20s tall aisles were found almost exclusively in the north and east. These aisles are usually supported on thin drum columns. The earliest would be the early 80s – in the choirs of the two Cistercian abbeys of Longpont and, to a lesser extent, Chaalis,³⁰ and in the ambulatories of Soissons and Saint-Quentin, both around 1182.³¹ The Longpont drum piers are just under 9 meters high, which is almost the same as Chartres. This trend to stretch the aisle upwards culminated in the enormously tall aisles of Reims, Beauvais, Amiens and Saint-Martin-aux-Bois.

The simplicity of these stretched buildings was in marked contrast to the complexity of the four-story format in Laon and Noyon of the 60s, with heavy piers and shafts, "with multiplicity of divisions ... and a tight grid of small-scale units".³² Where Bony refers to it as "an ideal gridwork for the development of height", the very mediocre heights achieved with a four-story elevation puts this in doubt.³³ The Soissons south transept of the 70s was a last attempt to thin the members while keeping to four stories, an attempt that was superseded almost immediately in the same building by the stretched aisle and elongated drum piers of the choir.

As an aside, the Chartres nave bases for the first *pilier cantonné* were laid in 1196.³⁴ The porch at Corroy in the Marne may have been earlier, though the capitals are very worn and hard to decipher. This was followed in the 1200s by the naves of Montataire, Pacy-sur-Eure, Saint-Leu-d'Esserent and Notre-Dame in Paris. It was never as popular as the drum, by one to five.³⁵

The full-width window: In polygonal apses it was common to set the window shafts alongside those of the ribs, at least from the time of Saint-Martin-des-Champs in the 1130s. This was not applied to the wider walls in straight bays until Saint-Remi. In its axial chapel in the 60s the framing shafts of the straight bays merge into the rib shaft. All trace of the wall had disappeared. This was followed in the triplet-windows on the eastern apse wall at Fossoy and in the Saint-Remi clerestory a few years later. By the 80s the idea had entered the mainstream.

Eliminating the walling alongside the windows advanced the weaving process that had been begun in the triforium into the clerestory, and further added to the skeletalization of the interior. However, the shafts used to frame the triplet windows tended to diminish this process by drawing attention to the frames rather than to the glass. The Orbais clerestory avoided this by eliminating the framing shafts.

The next move was to replace the triple window with double lights, and to set a rose above that. As with nearly every item discussed here, their first use was in the north-east rather than the Ile-de-France. Of all the double-windows-with-rose in the Basin almost fifty percent were built in the north-east before 1200 compared to 12 percent elsewhere. However, afterwards only one-fifth were erected in the north-east.

The great rose windows: Most roses from the 1130s onwards were, like other windows, narrower than the bay and were surrounded by large areas of walling. Spreading the window across the entire bay with only minimal walling on each side – just enough to stabilize the masonry in the corners – was first used in the 60s in the Cistercian abbey of Preuilly, now in ruins. This was followed by Guignicourt in the late 70s and many other Laonnais buildings in the 80s and, further afield, the Donnemarie choir to the south later in that decade.

The extension to the Laon cathedral choir and the westernmost bay of the nave were both started within a year of 1180, and completed by the mid-90s. The foliage on the capitals quite clearly dates these parts.³⁶ As well, the profiles in both end walls are almost identical, and are recognizable in two masters who later worked at Chartres: Bronze in the lower level and Scarlet in the upper.³⁷

The tall clerestory: As long as the vaults sprang from below the clerestory window sills they were still being visibly supported by the wall. The masonry between the arches of the triforium and the clerestory sills was the last remaining functional masonry visible from the inside. To bring the whole building into consistency with the illusional concept of skeletal weaving, the supportive function of the wall had to be removed. Bony calls this "the point of departure for the achievement of gigantic height".³⁸

It was normal in all single-story churches for the vaulting capitals to be placed higher than the window sills. It was only a matter of time before this concept was applied to the clerestory of a large multi-story building. The first lowering of the sill below the capitals of the vault spring was taken either at Soissons or Orbais just before 1200 - a decade before the same scheme was begun at Chartres.

It could be argued that the tall clerestory had been planned in these buildings when the footings were being laid. At Soissons this is belied by the date the crossing capitals next to the south transept were raised, and at Chartres there is evidence for a change to the design in 1210.³⁹ Work paused just below the clerestory walkway at the most advanced western end. As there was no technical reason for a pause at this level, one wonders whether work was deliberately held back while a more advanced design was being considered. If this were the case, it coincided neatly with the completion of the choir clerestory and vaults at Soissons, just before the clergy occupied it in 1212.

The tall clerestory would not have been possible without the *tas-de-charge*. This constructional device was first used just before 1150,⁴⁰ for in thinning the shafts the width of the impost that supported the close-packed vaulting arches was greatly reduced, and a neat way had to be found to merge the arches with the ribs. This was done by cutting all the lower voussoirs of all three arches from a single stone. In the narrow piers of the tall clerestory this technique was adapted and improved. It seems to have been initiated to solve a building problem, rather than for its structural value (not unlike early rib vaults).

The fact that the horizontal bed joints in the *tas-de-charge* raised the effective height of the springing opens the question of whether the masters realized that in a number of earlier buildings they had already, to all intents and purposes, raised the vault springing above the sills. If so, the structural modeling of, say, Saint-Martin at Etampes, with the top of the *tas-de-charge* set two courses above the sills, would have been perceived as acting in the manner of a tall clerestory, the only difference being that visually the capital still lay below the sill.⁴¹

All the evidence points to the fact that the bishoprics of Laon, Soissons and Reims, with a little help from the Champagne, created the vocabulary for High Gothic before 1200. It was only gradually that the south and west of the Basin took these ideas on until, in an extraordinary moment, they transformed them all into the intricacies of the Rayonnant.

The first High Gothic format

The axial chapel in the abbey of Saint-Remi has received occasional credit for the paradigm it created, though not enough. Contemporary with the aisle piers of Notre-Dame, yet totally unlike it, Saint-Remi contained most elements of what was to become the High Gothic style, though with no great height in the aisles or gallery.

The foliage on the capitals bear out Anne Prache's analysis that would date the chapel foundations to 1165± and the gallery to around 1172.⁴² Though the upper flying buttress arches do not seem to have been erected until the high vaults were completed in the 90s, from the foliage on the bosses, the gallery vaults and the clerestory walls and timbers of the main roof were all in place by 1175/7. The foliate evidence for this is that three-quarters of the capitals in the upper stories are formals, which indicates the early 70s.⁴³

Jean Bony wrote that "in the last quarter of the twelfth century architects ran a fine surface network over the inner face of the building to give the impression of a coherent armature which, in spite of the thinness, appears to support the whole fabric: an illusory effect but not an irrational one".⁴⁴ In Saint-Remi this occurred earlier than that. The chapel is the first example of the light-weight skeletal double-wall system, and the clerestory the first example of the triplet window linked to the triforium that created a 'surface network' across the upper two stories.

The chapel fits between huge supports for later flyers, full-width windows and minimal-sized shaft members that are as thin as any built over the next fifty years. There is full dissolution of the wall face behind the passage screen and the dado arcades. The lightness of the dado arcade feels like a lower story, with a strong division under the window sill emphasized by the walkway string course and tall windows. The vaulting capitals that are placed above the sills produce a miniaturized version of the tall clerestory.

Other oft-quoted examples of the double-wall window and recessed upper story are later: the gallery chapels of the Laon transepts and Saint-Julien-le-Pauvre from the late 70s, and the twin double-wall clerestories of the Noyon transepts that were not erected until well into the next decade.

Saint-Remi's first clone, the choir of Notre-Dame-en-Vaux in Châlons-en-Champagne, was begun as the roof was being laid over Saint-Remi, and took as long to build. Its semi-clone in the Saint-Quentin ambulatory chapels was begun as Notre-Dame was being finished.

The concepts that made Rayonnant

Where the axial chapel of Saint-Remi was a model for the High Gothic, so the royal chapel of Saint-Germain-en-Laye, completed in 1238, displays all the major qualities of the new paradigm that came to fulfillment over the next ten years or so – tracery, dado arcades with tri-lobed arches, recession with passageways under the windows and comprehensive undercutting to profiles and the arches of the dado.

The Ile-de-France so resisted the Gothic concepts coming from the north-east that the region was unaffected by the tall clerestory or tracery until the 1230s, when the 'Court School' materialized. It is surprising that this happened at all, considering that the nearby pilgrimage center at Chartres had had so little influence on the Parisis. Chartres denied all those values which the ordinary Parisians held most dear.

When Rayonnant emerged, it collected almost no ideas from the Demesne, but imported its major vocabulary from the north and east where they had been invented over the previous thirty years. These elements were first assembled in Saint-Germain.⁴⁵ There are no plain surfaces – all are covered with traceried patterns, even to the spandrels between the windows and the roof cornice. The only elements missing were the stretched aisles, and the linked and glazed triforium that had to wait on a larger building.

In all these things Saint-Germain is, at one level, just a highly decorated version of the Saint-Remi axial chapel built seventy years before. Comparing the two, the basic forms are no different. It is the surface patterning of tracery that linked Saint-Germain with a new archetype.

Tracery: In small oculi, solid plates of stone were used to divide the circle into trefoils and quatrefoils. The earliest are in the north and east in the 1140s and 50s: Oulchy-la-Château, Notre-Dame-en-Vaux transepts and nearby Francheville. This is essentially plate tracery. A larger format developed during the late 70s in the same area: a central opening was surrounded by four, six or eight smaller openings, such as the Laon north rose, the Couvelles west wall and the Boulton-sur-Suippe clerestory, all very close to 1180. Sometimes the small oculi over paired windows or doorways would be treated in the same way, as in the north arm of Saint-Eugène in the early 90s, the Orbais clerestory and the Grisy and Champagne-sur-Oise west doors a decade later.

The transformation was from plate to bar tracery. It first appeared where the plates in oculi were replaced with thin bands of curved stone that left cusp-shaped openings that were filled with glass, probably first in the narthex at Glennes in the 80s. More complex arrangements may have appeared early in decorative work, as in the panels under the stair windows of the Chartres transept porches where small bas-reliefs show an imaginative collation of windows and oculi.⁴⁶

This introduced a significant new concept into medieval architecture: before, the geometric form of every element (like a window) was designed symmetrically around an axis, and the centers of any arcs lay within the element. Buildings were an assemblage of such forms. But cusps are not centralized forms. They are

geometrically accidental, being the by-product of other actions. They allowed the indeterminate to have an equal presence with the determined. The great tracery windows would have been inconceivable if the concept of the 'accidental form' had not taken on.

It was at the Augustinian abbey of Essômes-sur-Marne that an accidental form was first allowed to penetrate the walling between the window openings, in or just before 1210.⁴⁷ This set the stage for the marvelous traceried aisle windows of Reims that were installed some ten years later. However, apart from a related group of churches centered on the Marne, bar tracery did not become a wide-spread concept for another generation.⁴⁸ In the Ile-de-France even the extremely tall Villers-Saint-Paul windows of the 40s had no use for anything but plate tracery.

The trefoil arch has a not dissimilar effect, being decidedly horizontal and non-structural. The earliest seems to be the dado of Avenay-Val-d'Or from the 1210s, followed by Mont-Notre-Dame and the Notre-Dame Gallery of Kings shortly afterwards.

The extension of tracery patterns beyond the frame of the window, be it lancet or rose, seems to have first appeared in the lower spandrels under the north rose at Chartres, around 1233.⁴⁹ After Saint-Germain patterns of tracery were applied to any bare wall surface and to the cusp-like spandrels over aisle and triforium arches, playing such revolutionary games as had never been seen in the north-east where the concept had come from. Saint-Martin-aux-Bois is a splendid example of this.

The linked and glazed triforium: The first linkage was in the choir of Saint-Remi just before 1175,⁵⁰ with six more before 1230: Orbais, Notre-Dame-en-Vaux, Essômes, Vaudoy, and in Reims the cathedral apse and Saint-Jacques. Though clearly not exceptionally popular, it was taken over by Rayonnant builders to enable them to absorb the triforium into the clerestory.

The first triforium with back-lighting was in the western wall of Couvrelles around 1180, the Saint-Leu-d'Esserent choir later in the 80s, and Mello twenty years later.⁵¹ The first with windows the same size as the triforium arcade was Vaudoy in the later 1210s. From foliage and profiles I cannot accept Branner's view that Vaudoy was a copy of Beauvais.⁵² It stands on its own as an independent creation. The effect was, as with linkage, to merge the clerestory with the triforium. This usually meant that the roof over the aisles had to be kept away from the triforium wall instead of leaning up against it, involving box gutters which have never been renowned for being fully watertight. From a roofing point of view, it was an uncomfortable solution which stretched the plumber's skills to the utmost.

Additional small shafts were added around the panel containing the triforium that pushed it back from the plane of the wall. Tracery was applied over the junction between clerestory and triforium until at Saint-Denis the pointed gables of the triforium look like the skyline of the Heavenly City.⁵³

Conclusions

In short, we can say that the evolution of Gothic had not in any way exploded out of a few powerful city workshops to seed ideas elsewhere. Creativity could happen anywhere in a continuous process, and the great cathedrals were the culmination of decades of prior experimentation.

During the years before 1150 originality came from the whole of the Paris Basin, and in particular from the Oise, but after that all the inventions that created the vocabulary of High Gothic came from outside the Ile-de-France. The most important of these were interconnected and fluid spaces, thin walls with slender members and flying buttresses. Thus, for the years after 1160, and for the key elements of thirteenth century architecture, we do need to reassess old canards such as von Simson's "Gothic is the style of the Ile-de-France" and Bony's "Gothic surged suddenly in the Ile-de-France and developed its conquests until the final years of the twelfth century".⁵⁴

In fact, the bulk of innovative architecture came from the abbeys of the northeast – the Soissonais, the Reimois and the Laonnais – and not from the cathedrals. That these were some of the major Benedictine and Cistercian houses in the area suggests that the concepts may have been consciously evolved in the intellectual atmosphere found in many of the abbeys. This statement is only possible because I have followed Bony's dictum that "the margin of even a few years makes a great difference in terms of historical meaning".⁵⁵

The list over the page notes where the concepts of Rayonnant first appeared. The abbeys are marked in bold. They predominate. Dates are within a couple of years. They are not for the commencement of the building, but for when the item was actually constructed which could have been decades after the foundations. In multi-contractual each mason was in charge of his own segment of work, and this designs were changed so often it would not be wise to assume that, for example, the Orbais tall clerestory had been intended when the plan was prepared over forty years earlier.

1160 **Saint-Germer-de-Fly**: tall-and-thin, internal recession
1165 **Preuilly**: full-width rose window
1165 Laon: continuous triforium
1167 **Saint-Remi** chapel: full-width windows with passage
1170 Notre-Dame Paris: extreme height
1172 **Saint-Remi** choir: linked triforium
1180 **Longpont** or Chaalis choirs: stretched aisle
1185 **Braine** clerestory: external recession
1192 **Orbais** or Soissons: tall clerestory
1196 Chartres: *pilier cantonné*
1210 **Essômes**: bar tracery

These concepts played decisive roles over the following decades.⁵⁶ Together they enabled the upper stories to become a replica of the Heavenly Jerusalem floating above the congregation.⁵⁷

Based on the chronology evolved in *the Ark of God*, the 1170s transformed more than foliate carving from formal to natural: it simultaneously redefined the nature of architecture. Some very deep psychic adjustment had occurred in the community to bring about such a transformation in aesthetics. The recession in building that can be traced at this time may have been the cause, the trigger or even the result.⁵⁸ Whatever the reason, there had been a crucial change in mood from that decade onwards.

1 Jalabert, *Flore sculptée*, ch 1; Lambin, *La flore gothique*; Viollet-le-Duc, *Dictionnaire raisonné*.

2 James, *Ark of God*, Part A.

3 James, *Template-makers*, ch 1; "3 Memes and assumptions".

4 Caviness, *Braine: primary sources*, 524-48; Blum, *Lateral Portals*, 190-227; Bruzelius, *Notre-Dame*, 540-69.

5 Bony, *French gothic*, 273.

6 Jalabert, *Flore gothique*, 181-246.

7 Branner, *Saint Louis*, 380.

8 Bony, *French gothic*, 137; James, *Template-makers*, 112-17.

9 James, *Flying buttresses*, 261-87.

10 Bony, *French gothic*, 141.

11 James, *Ark of God*, 1:688-689.

12 James, *Flying buttresses*, 284; James, *Saint-Denis*, 42-62.

13 Delisle, Robert de Torigny, 68.

14 James, *Template-makers*, 115-16.

15 Bony, *Resistance to Chartres*, 40-1.

16 James, *Template-makers*, 112-6.

17 Lefèvre-Pontalis, *Architectes*, 113; Sauerländer, *Notre-Dame in Paris*, 1-56.

18 James, *Ark of God*, 2:940-44.

19 James, *Contractors*, 382-93.

20 Bony, *French gothic*, 233.

21 Caviness, *Braine: primary sources*, 524.

22 James, *Template-makers*, 116; Bony, *French gothic*, 105 et seq.

23 Bony, *French gothic*, 187-9.

24 Branner, *Chartres*.

25 James, *Ark of God*, 2:1597-98.

26 James, *Template-makers*, 128-29.

27 James, *Template-makers*; I have not found any errors in the toichological observations.

28 James, *Template-makers*, 52-53.

29 Villes, dismisses their value, *St-Pierre*, 549-551; Hélot, *Deux églises*, 87-112.

30 For dating "35 Canopy of Paradise". Tall thin piers, often built as *en délit* monoliths, had been used sixty years earlier south of the Loire, as in Fontevrault and Paray-la-Monial.

31 The date for Saint-Quentin was determined by the height of the chapel walls and Soissons by the level of the window arches that were in place before the gallery in the adjacent transept was vaulted, around 1182; James, *Template-makers*, 129; James, *Ark of God*, 485 and 495.

32 Bony, *French gothic*, 227.

- 33 Bony, *French gothic*, 107.
- 34 By Rose in campaign 'C', James, *Contractors*, 117.
- 35 James, *Template-makers*, 105-6.
- 36 James, *Template-makers*, 84.
- 37 Besides their foot units in the templates, the major items for Bronze are porch details, eastern window frames, and corbels; and for Scarlet the corbels, string courses, roses and stair windows.
- 38 Bony, *French gothic*, 225-26.
- 39 James, *Contractors*, 438. Grant Hildebrand and I reported this process in James, *Pioneers*, 8. For Soissons James, *Template-makers*, 132-39.
- 40 James, *Template-makers*, 108-12.
- 41 Aubert, *Plus anciennes*, 36, refers to the corbelling of the lower courses of the ribs in the Durham nave (1128/33) as a *tas-de-charge*, for the bed joints are set perpendicular to the ribs and not to the doubleau.
- 42 Prache, *Saint-Remi*.
- 43 James, *Ark of God*, 1:11-42.
- 44 Bony, *French gothic*, 158 et seq.
- 45 Champceuil in the south from the 20s is the only exception.
- 46 James, *Ark of God*, 1:522 and 535.
- 47 James, *Template-makers*, 156-59.
- 48 James, *Template-makers*, ch. 8 and map 177.
- 49 Probably financed, like Saint-Germain-en-Laye, by the Court. James, *Contractors*, 495-97.
- 50 The vaults were not completed until the 90s. Prache, *Saint-Remi*, 95-7 and *Notre-Dame-en-Vaux*, 29-92; James, *Template-makers*, 46-49.
- 51 For Couvrelles and Mello, James, *Template-makers*, 58-61, 165, n. 51; Bruzelius, *Saint-Denis*, 150.
- 52 Branner, *Saint Louis*, 22.
- 53 James, *Traveller's key*, ch 3.
- 54 Von Simson, *Gothic cathedral*, 64; Bony, *Genesis of gothic*, 18-20.
- 55 Bony, *French gothic*, 273.
- 56 James, *Template-makers*, 179 et seq.
- 57 James, *Template-makers*, 115-20; "35 Canopy of Paradise".
- 58 "40 Funding".